

Claims

1. A tote bin liner having a liner wall to form a container, said liner wall including a transfer spigot which provides a passage from inside said liner to a tote bin outlet, said transfer spigot adapted to have a valve mounted thereto to provide a controlled outlet from the tote bin outlet,
5 the transfer spigot comprising:

a tubular body which defines said passage, the tubular body having an opening on the distal end therethrough;

an annular surface located around the opening;

10 a rupturable membrane sealed to said annular surface by a continuous seal around said opening, said continuous seal being located on said annular surface;

the tubular body being shaped and configured such that when in use and said valve is mounted to the body, a seal on the valve will clamp the membrane against the annular surface.

2. A tote bin liner according to claim 1 wherein said annular surface is generally perpendicular to the axis of the tubular body so that a seal on a valve clamped to the body will press the
15 membrane against the annular surface.

3. A tote bin liner according to either preceding claim wherein the annular surface has a radially inner portion and a radially outer portion and said continuous seal is located on said radially outer portion whilst the radially inner portion is adapted to have a seal of a valve which is in
20 engagement with the tubular body seal therewith.

4. A tote bin liner according to either claims 1 or 2 wherein the annular surface has a radially inner portion and a radially outer portion and said continuous seal is located on said radially inner portion.

5. A tote bin liner according to any preceding claim wherein the tubular body has an outwardly directed flange on the distal end thereof and the annular surface is provided on said flange.
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6. A cutter assembly to cut a membrane which seals a transfer spigot on a container, said cutter assembly having:

30 a valve including a valve body adapted to engage with said spigot, the valve body including a valve closure member, adapted to be moved between open and closed position to open and close the valve;

at least one elongate cutter which terminates in a cutting tip, said cutting tip being adapted to rupture or slit said membrane;

actuation means for providing axial movement to said cutter within said valve body; and

said actuation means and/or said elongate cutter body being adapted to move said cutter body to cut a membrane independently of the operation of the valve closure member.

7. A cutter assembly according to claim 6 wherein said actuation means is adapted to rotate said cutter about an axis to define an arcuate cutting action.

8. A cutter assembly according to either of claim 6 or 7 wherein said cutting tip is in the form of any one of the following:

a pointed spike;

a blade;

a crescent shaped knife;

a V-shaped knife;

a D-shaped cutter having an open segment.

9. A cutter assembly according to anyone of claims 6 to 8 wherein said actuation means is adapted to move said cutter to a side of said valve closure member remote from the spigot.

10. A cutter assembly according to any one of claims 6 to 9 wherein said cutter is formed in at least two elongate sections, each terminating in a cutting tip.

11. A cutter assembly according to any one of claims 6 to 9 wherein said cutter bifurcates into two arms, each arm terminating in a cutting tip.

12. A cutter assembly according to any one of claims 6 to 11 wherein the cutter and actuation means are housed in a tubular housing which is adapted to be coaxially mounted to the valve body, the actuation means, in use, being adapted to move the cutter through the valve body, past the valve closure member when the valve closure member is open, into engagement with the membrane to cut said membrane.

13. An assembly for cutting a membrane which seals a transfer port into a container, said assembly comprising a tubular housing, a cutter axially slidable within the tubular housing, and actuation means for urging the cutter out of one end of the tubular housing to enable the cutter to pierce or rupture a membrane on a transfer port to which the assembly is mounted in use.

14. An assembly according to claim 13 wherein the tubular housing has a valve controlled inlet thereon for the introduction of sterilisation fluid into the interior of the transfer port.

15. A method of sterilising an impervious rupturable membrane attached to a tote bin spigot on a liner and subsequently filling or emptying said liner, said impervious rupturable membrane closing a passage which connects the exterior of said liner to the interior of said liner, said method comprising the steps of:

5 attaching a valve having a flow passage therethrough and a valve closure member mounted within the passage moveable between open and closed positions, the valve closure member being spaced away from the membrane;

 passing a sterilising medium into at least the space between said membrane and the valve closure member to sterilise the outside surface of said membrane and that part of
10 the internal flow passage within said valve between said membrane and the valve closure member ;

 piercing said membrane with a cutter which passes along the flow passage past the valve closure member when the valve closure member is in the open position.

16. A method according to claim 15 wherein the valve closure member is in an open position at the
15 start of and for the duration of the sterilisation step.

17. A method according to claim 16 wherein said sterilising medium sterilises the whole of the internal flow passage within said valve.

18. A method according to any one of claims 15 to 17 wherein the valve is a butterfly type valve.

19. A method according to any one of claims 15 to 18 wherein the cutter is rotated either during or
20 after the piercing of the membrane takes place.

20. A tote bin liner having a liner wall to form a container, said liner wall including a transfer spigot which provides a passage from inside said liner to the outside thereof, said transfer spigot comprising:

25 a tubular body which defines said passage, the tubular body having an opening on the distal end thereof;

 an annular surface located around the opening said annular surface providing a sealing surface adapted to engage a seal on a surface of a valve body when said valve body is assembled therewith;

30 a rupturable membrane sealed to said annular surface by a continuous seal around said opening, said continuous seal being located on said annular surface.

21. A transfer spigot for a tote bin liner according to claim 20.
22. A tote bin liner being substantially as hereinbefore described with reference to figure 3 of the accompanying drawings.
23. A cutter assembly being substantially as hereinbefore described with reference to any one of the

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embodiments shown in figures 3 to 9 of the accompanying drawings.